User's Manual

Protector™ Downdraft Powder Station

Models

3410000 3410001
3420020 3420021 3420022 3420023
3420024 3420025 3420026 3420027

To receive important product updates, complete your product registration card online at **register.labconco.com**

Protecting your laboratory environment
LABCONCO®

Labconco Corporation
8811 Prospect Avenue
Kansas City, MO 64132-2696
800-821-5525, 816-333-8811
FAX 816-363-0130
E-MAIL labconco@labconco.com
HOME PAGE www.labconco.com

Copyright © 2010 Labconco Corporation. All rights reserved.

The information contained in this manual and the accompanying products are copyrighted and all rights reserved by Labconco Corporation. Labconco Corporation reserves the right to make periodic design changes without obligation to notify any person or entity of such change.

Warranty

Labconco provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

The warranty for all Labconco products will expire one year from date of installation or two years from date of shipment from Labconco, whichever is sooner, except the following;

- Purifier® Logic® Biological Safety carry a three-year warranty from date of installation or four years from date of shipment from Labconco, whichever is sooner.
- SteamScrubber® & FlaskScrubber® Glassware Washers carry a two-year warranty from date of installation or three years from date of shipment from Labconco, whichever is sooner.
- Blood Drawing Chairs carry a ten year warranty.
- Carts carry a lifetime warranty.
- Glassware is not warranted from breakage when dropped or mishandled.

This limited warranty covers parts and labor, but not transportation and insurance charges. In the event of a warranty claim, contact Labconco Corporation or the dealer who sold you the product. If the cause is determined to be a manufacturing fault, the dealer or Labconco Corporation will repair or replace all defective parts to restore the unit to operation. Under no circumstances shall Labconco Corporation be liable for indirect, consequential, or special damages of any kind. This statement may be altered by a specific published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments. Lamps and filters are not covered by this warranty. Damage due to corrosion or accidental breakage is not covered.

Returned or Damaged Goods

Do not return goods without the prior authorization from Labconco. Unauthorized returns will not be accepted. If your shipment was damaged in transit, you must file a claim directly with the freight carrier. Labconco Corporation and its dealers are not responsible for shipping damages.

The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.

Limitation of Liability

The disposal and/or emission of substances used in connection with this equipment may be governed by various federal, state, or local regulations. All users of this equipment are required to become familiar with any regulations that apply in the user's area concerning the dumping of waste materials in or upon water, land, or air and to comply with such regulations. Labconco Corporation is held harmless with respect to user's compliance with such regulations.

Contacting Labconco Corporation

If you have questions that are not addressed in this manual, or if you need technical assistance, contact Labconco's Customer Service Department or Labconco's Product Service Department at 1-800-821-5525 or 1-816-333-8811, between the hours of 7:00 a.m. and 6:00 p.m., Central Standard Time.

Part #3412800, Rev. -
ECO F833

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION 1

CHAPTER 2: PREREQUISITES 2
- Space Requirements 2
- Clearance 2
- Location Requirements 3
- Exhaust Requirements 3
- Electrical Requirements 3

CHAPTER 3: GETTING STARTED 4
- Unpacking the Station 4-5
- Initial Operation 6

CHAPTER 4: PERFORMANCE FEATURES AND SAFETY PRECAUTIONS 7
- Directional Airflow 8
- Prefilter 8
- HEPA Filter 8-9
- Blower 9
- Station Air Intake and Exhaust 9
- Safety Precautions 10

CHAPTER 5: USING THE STATION 11
- Fan Switch 11
- Filter System Light 11
- Dusting in the Station 12

CHAPTER 6: MAINTAINING THE STATION 13
Routine Maintenance Schedule 13
Service Operations 14-16
Prefilter Replacement 14
HEPA Filter Replacement 15
Resetting a Circuit Breaker 16
Setting the Speed Control 16

CHAPTER 7: TROUBLESHOOTING 17

APPENDIX A: COMPONENTS 18

APPENDIX B: DIMENSIONS 19

APPENDIX C: SPECIFICATIONS 20

APPENDIX D: ACCESSORIES 21

DECLARATION OF CONFORMITY 22

Chapter 1: Introduction

Congratulations on the purchase of a Labconco Protector Downdraft Powder Station. The Station is designed to capture and collect fingerprint powder to prevent its spread in the room environment and on you while dusting for prints. The Protector Station is the result of years of experience in manufacturing laboratory equipment, and users like you suggested many of its features to us.

The Downdraft Powder Station offers many unique features to enhance performance and flexibility. To take full advantage of them, please acquaint yourself with this manual and keep it handy for future reference. If you are unfamiliar with how downdraft stations operate, please review Chapter 4: Performance Features and Safety Precautions before you begin using the station. Even if you are an experienced station user, please review *Chapter 5: Using the Station*; it describes the station's features so that you can use it efficiently.

This manual and other technical information is available in PDF format at our website: www.labconco.com.

Chapter 2: Prerequisites

Before you install the downdraft station, you need to plan the site for installation. Examine the location where you intend to install the station. You must be certain that the area is level and of solid construction. In addition, a source of electrical power must be located near the installation site.

Carefully read this chapter to learn:

- Space requirements.
- Location requirements.
- Electrical power requirements.
- Exhaust requirements.

Refer to Appendix C: Specifications, for complete station electrical and environmental conditions, specifications and requirements.

Space Requirements

The dimensions for the downdraft station are shown in Appendix B: Dimensions.

Clearance

A minimum clearance of at least 6 inches (150 mm) is suggested on the top of the station to allow for the unobstructed discharge of filtered air.

Location Requirements

Note: The station should be located on a flat, level bench or work surface for proper operation.

Exhaust Requirements

As stated earlier, the exhaust discharge of the station, located on the upper left side on the back of the station should never be obstructed. The station is designed to have its back surface pushed against a wall, but the top of the station should have no obstructions within 6 inches of the exhaust discharge.

Electrical Requirements

The Downdraft Station models have the following electrical requirements:

Table 2-1

Model #	Requirements
3410000 -01	115 VAC, 60 Hz, 1 Amp
3410020-27	230 VAC, 50/60 Hz, 0.5 Amp

Note: An outlet with a circuit breaker rated at 10 amps for 115 volt models (5 amps for 230 volt models) should be located as close as possible to the right rear side of the station. Power cords supplied with the station are 3 meters (10 feet) long.

Chapter 3:
Getting Started

Now that the installation site is properly planned, you are ready to inspect and install the Protector Downdraft Powder Station. This chapter covers how to:

- Unpack the station.
- Install the station.
- Connect the electrical supply source.

Tools required for installation the station include a flat-blade screwdriver, scissors, or a box knife.

Note: The station can weigh up to 75 lbs. (34 kg). Always follow safe-lifting guidelines when unpacking or moving the station.

Unpacking the Station

Carefully remove the outer carton and inspect the station for damage that may have occurred in transit. If the station is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.

Note: United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.

Do not return goods without the prior authorization of Labconco. Unauthorized returns will not be accepted.

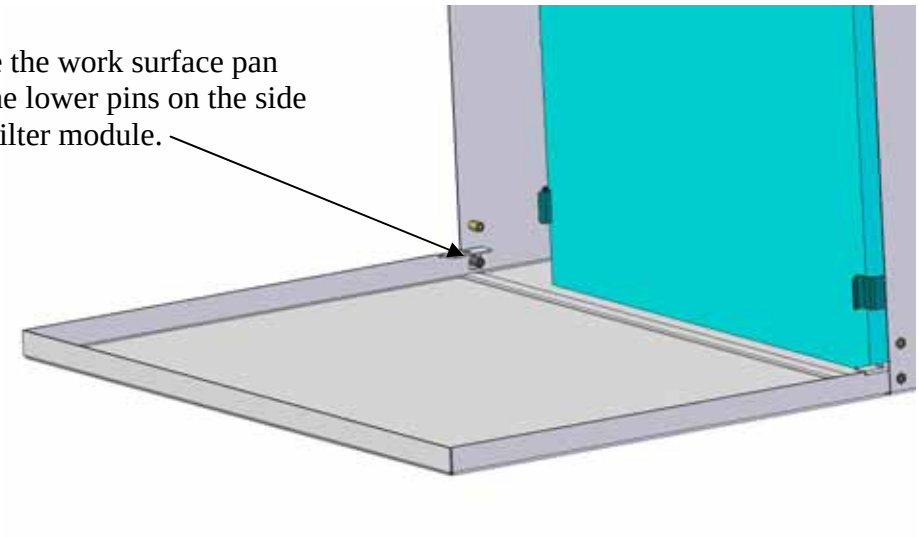
If the station was damaged in transit, you must file a claim directly with the freight carrier. Labconco Corporation and its dealers are not responsible for shipping damages.

Do not discard the carton or packing material for the station until all of the components have been checked, installed and tested.

The work surface and work surface pan are shipped unassembled to the filter module. To assemble the station:

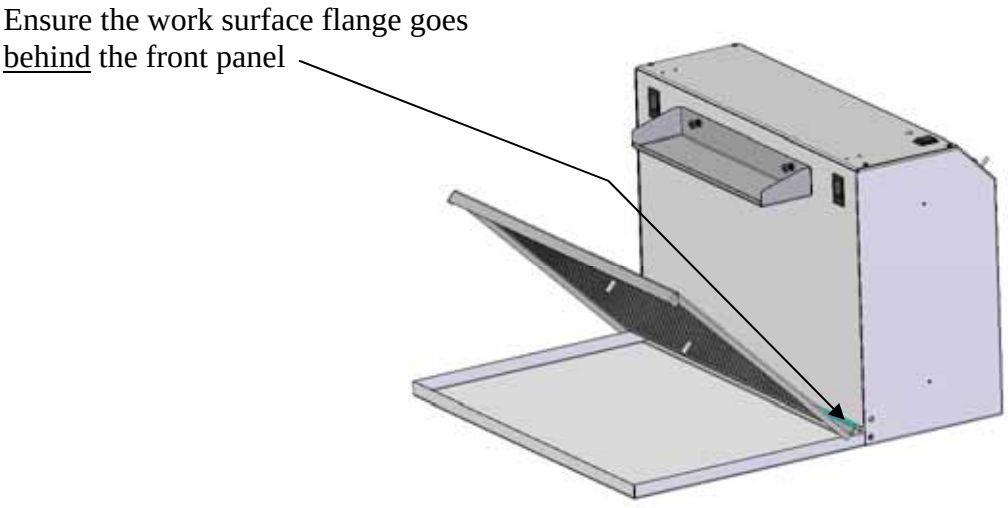
1) Engage the notches on the front of the pan with the pins located in the bottom corners of the filter module, as shown in Figure 3-1.

Figure 3-1



2) Set the work surface on top of the pan by hooking the rear flange under the bottom edge of the filter cover, as shown in Figure 3-2.

Figure 3-2



3) Plug the power cord into the filter module. The plug socket is located on the top right rear corner of the station. The unit is ready for use.

Initial Operation

Prior to use with powder, you should perform the following operational tests to ensure the station is operating properly:

- Airflow Smoke Pattern Test

  ✓ With the system fan ON, introduce smoke (from a cigarette, chemical smoke stick, etc.) above the work surface. The smoke should flow directly down into the work surface. If the smoke does not flow as described, see the “Adjusting the Fan Speed” section of Chapter 6.

Chapter 4: Performance Features and Safety Precautions

The Protector Downdraft Powder Station operates using the following principles:

- Directional airflow.
- Prefiltration of large particulates by an inlet prefilter.
- Filtration and retention of particulates by a High Efficiency Particulate Air (HEPA) filter.

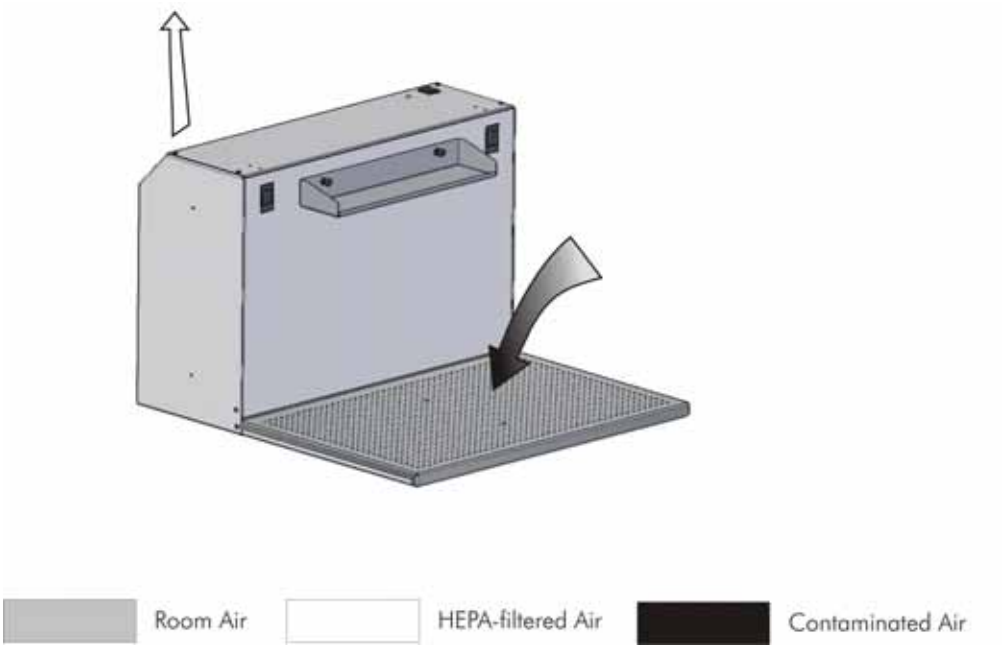
The major components in the system are:

- The prefilter
- The HEPA filter
- The blower to force air through the station

Directional Airflow

Directional airflow plays a critical role in Downdraft Powder Station performance. Air is drawn through the perforated work surface, into the prefilter, located behind the filter cover, and then through the HEPA filter. The filtered air is then exhausted out of the top left rear side of the filter module. This is illustrated in Figure 4-1.

Figure 4-1



Prefilter

The prefilter is a disposable, pleated paper filter. The filter has a Minimum Efficiency Reporting Value (MERV) of 8, meaning it removes 70-85% of particles 3.0-10 microns in size. See Appendix A for reorder part numbers.

HEPA Filter

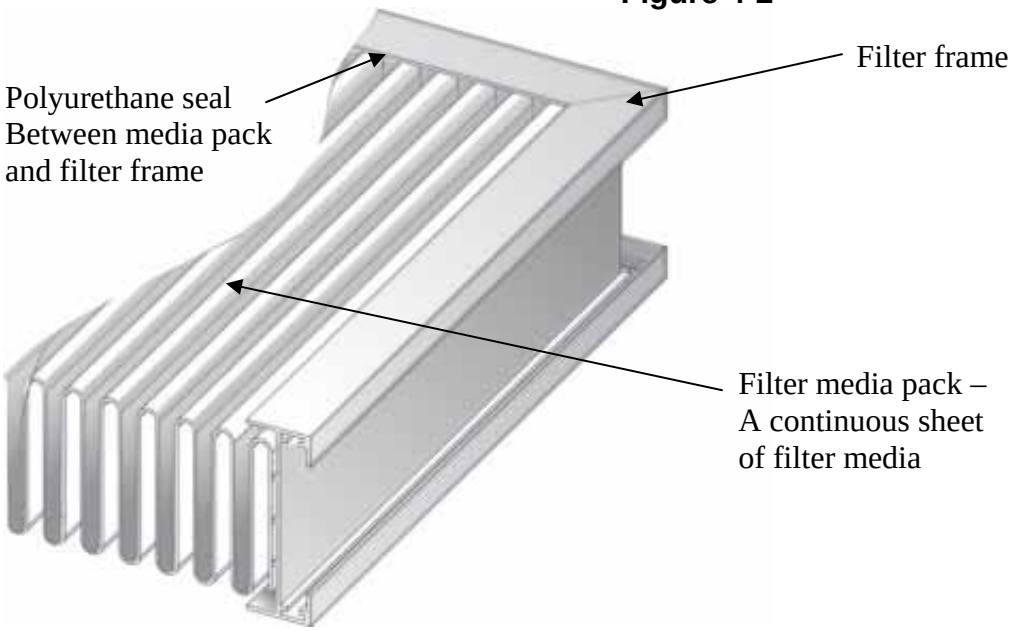
HEPA filters are disposable, dry-type particulate filters. The filter material or media is typically made of borosilicate microfibers formed into a thin sheet, in a process similar to the production of paper. This sheet is folded, or pleated to increase its surface area. The pleats are held in place by beads of glue that add rigidity to the media pack. The pack is then set into a frame, and sealed as shown in Figure 4-2.

The HEPA filter manufacturer establishes the efficiency of the filter by challenging it with an aerosol of known particle size. The number of particles that penetrate the filter are quantified, and this establishes the efficiency of the filter. The filter used in the Downdraft Powder Station is at least 99.99% efficient in removing particles 0.3 micron.

Note: **The HEPA filter media is very fragile. DO NOT touch the media. If you think the media of a HEPA filter is damaged,** Call Labconco's Product Service Department at 1-800-522-7658 or 816-333-8811.

Note: HEPA Filters are only effective against particulate material. Gases will pass through the filter.

Figure 4-2



Blower

The blower assembly pulls room air through the work surface, prefilter and HEPA filter, and then discharges the filtered air out of the top of the unit. The Downdraft Powder Station uses a motorized, backward curved fan for quiet, energy efficient operation.

Station Air Intake and Exhaust

In order to operate properly, the perforated work surface must be unobstructed. Blocking or restricting the exhaust outlet on the top of the filter module can also adversely affect the performance of the system.

Safety Precautions

NEVER USE THIS STATION WITH HAZARDOUS CHEMICALS OR BIOHAZARDS. FAILURE TO DO THIS CAN RESULT IN EXPOSURE TO THESE HARMFUL CONTAMINANTS. This station is intended to be used for the containment of nuisance powders only.

Ensure that the station is connected to electrical service in accordance with local and national electrical codes. Failure to do so may create a fire or electrical hazard. Do not remove or service any electrical components without first disconnecting the station from electrical service.

When handling evidence, or working in the station, always wear appropriate personnel protective equipment.

NEVER attempt to dust evidence containing flammable gases or solvents in the station. An open flame should NOT be used in the station.

HEPA filters only remove particulate matter. Operations generating volatile toxic chemicals are prohibited. The media of the filter is fragile and should not be touched. Avoid puncturing the HEPA filter during installation or normal operation. If you suspect that a HEPA filter has been damaged, DO NOT use the station; contact Labconco at 800-821-5525 or 816-333-8811 for further information.

The HEPA filter in the station will gradually accumulate airborne particulate matter from the powder and from airborne particulates. The rate of accumulation will depend upon the cleanliness of the air, operating time and the amount of powder being used in the station.

Do not operate the station without all of the appropriate filters in place.

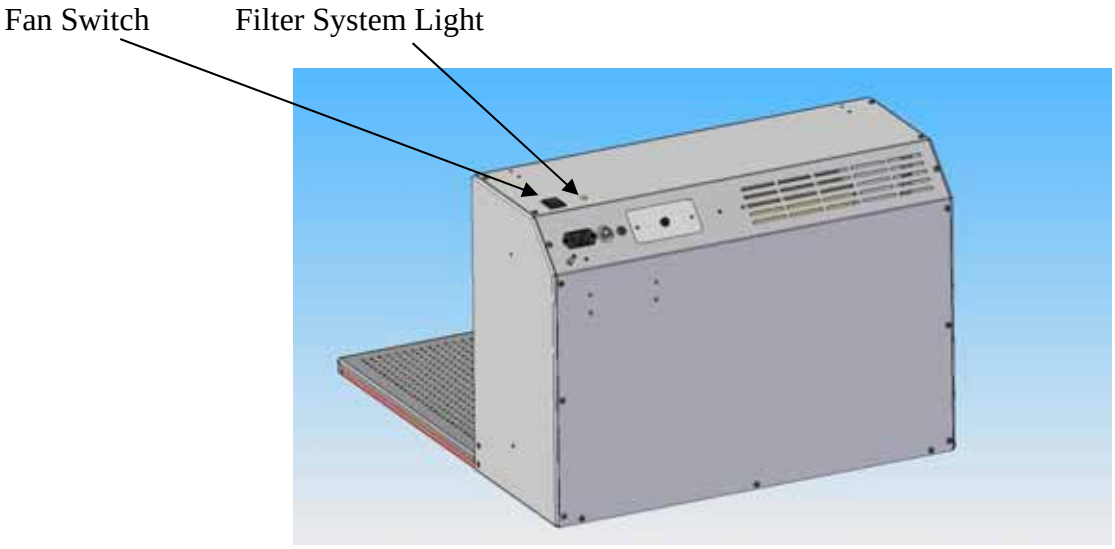
When handling used filters or prefilters, always wear appropriate personnel protective equipment.

Chapter 5:
Using the Station

Fan Switch

The fan switch is located on the upper right rear of the station, as shown in Figure 5-1. Turning the switch to the “Fan” position starts the blower, drawing air into and through the station.

Figure 5-1



Filter System Light

The filter system light will illuminate if the airflow across the filters is insufficient. If lit, first inspect or replace the prefilter. If lit with a clean prefilter, replace the HEPA filter.

NOTE: If the Filter System Light illuminates during use, finish the dusting of the evidence in the station, and then correct the problem before using the station again.

Dusting in the Station

Start-up

- Turn the fan switch to “Fan”.
- Check the condition of the prefilter and note if the filter system light is on. Ensure that the perforated work surface is not obstructed.
- Wear a long sleeved lab coat with knit cuffs and over-the-cuff rubber gloves. Use protective eyewear. Wear a protective mask if appropriate.

Wipe-Down

- Wipe down the perforated work surface with 70% ethanol, or a suitable cleaner, and allow it to dry.

CAUTION: Do not use bleach on the stainless steel work surface. Use disinfectants compatible with stainless steel.

Dusting Evidence

- Position evidence during dusting so that air flows around all surfaces of it, and directly into the perforated work surface. Do not overload the station. Do not place objects directly on top of the perforated work surface in a manner that would obstruct the downflow.
- Do not obstruct the perforated work surface or the exhaust air discharge, on top of the station.

Shutdown

- Turn off the station. Wipe down the perforated work surface with 70% ethanol, or a suitable cleaner, and allow it to dry.
- Remove the perforated work surface. Powder can be cleaned out of the pan, or the pan can be removed from the filter module and dumped in a waste container.
- Remove the filter cover. Inspect the prefilter, and replace it if necessary.
- Reinstall the filter cover, work surface pan and perforated work surface. Dispose of rubber gloves appropriately, and have lab coat laundered properly.

Chapter 6:
Maintaining the Station

The common service operations necessary to maintain the Downdraft Powder station for peak performance are listed below.

Routine Maintenance Schedule

Weekly

- Using 70% ethanol, or a suitable cleaner, clean the perforated work surface and work surface pan.
- Operate the system blower, noting if the filter system light turns on.

Monthly (or more often as required)

- Using a damp cloth, or LabSolutions Glass & Surface Wipes, Labconco part # 1570000; clean the exterior surfaces of the station, particularly the perforated work surface, to remove any accumulated dust.
- All weekly activities.
- Check the prefilter; replace if needed.

Annually

- All monthly activities.
- Replace HEPA filter.

Service Operations

Prefilter Replacement:

1. Remove the filter cover by pulling the two latches down at the same time. Swing the top of the panel away from the filter module, and then lift the panel away from the unit, as shown in Figure 6-1.

2. Pull the prefilter straight away from the HEPA filter, releasing it from the three prefilter clamps.

3. Install the new prefilter, noting the orientation (the airflow arrow should point toward the HEPA filter). Reinstall the filter cover.

Figure 6-1

HEPA Filter Replacement:

1. Remove the prefilter as described previously.

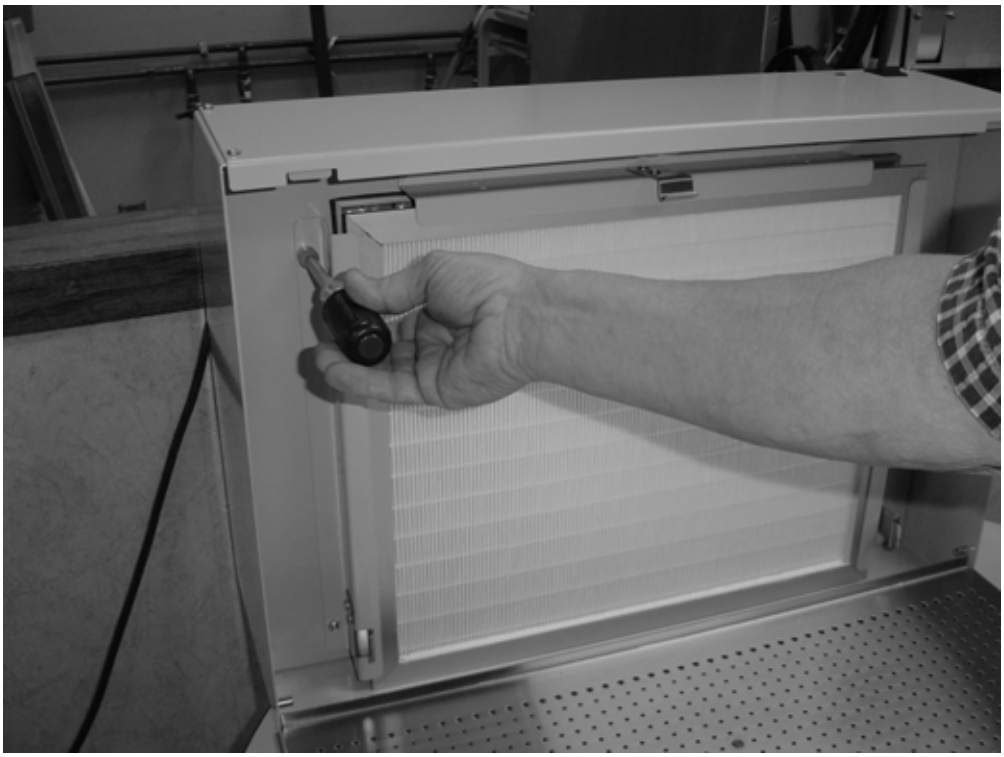
2. Using a nut driver or wrench, remove the HEPA filter clamps, as shown in Figure 6-2.

3. Pull the HEPA filter away from the filter frame, and install the replacement filter, with its gasket facing the filter frame.

NOTE: Take care not to touch the HEPA filter media. It is very fragile.

4. Reinstall the HEPA filter clamps, the prefilter, and the filter cover.

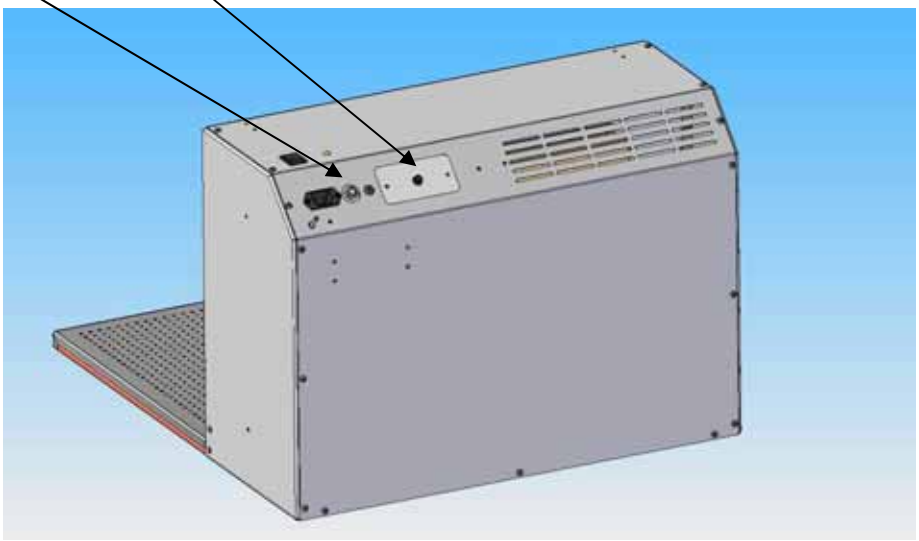
Figure 6-2



Resetting a Circuit Breaker:

To reset the circuit breaker located on the top rear of station, depress the white button until it sets.

Circuit Breaker Speed Control **Figure 6-3**



Setting the Speed Control

Adjustment of the speed control varies the volume of air drawn through the perforated work surface while the unit is operating. Ideally, smoke released within 6 inches (150 mm) above the perforated work surface should be drawn directly into the work surface.

Using a small screwdriver, adjust the speed control to give the required downflow velocity. See Figure 6-3 to locate the speed control. The downflow velocity is increased by turning the speed control counter clockwise and clockwise to decrease velocity.

Chapter 7: Troubleshooting

Refer to the following table if the station fails to operate properly. If the suggested corrective actions do not solve the problem, contact Labconco for additional assistance.

PROBLEM	CAUSE	CORRECTIVE ACTION
Station blower won't turn on	Unit not plugged into outlet	Plug the station into appropriate electrical service.
		Check connection to the top of station.
	Circuit breaker tripped	Reset circuit breaker.
Filter System Light turns on	Blockage of the prefilter	Check the prefilter; replace if needed. Ensure that there is no obstruction of the exhaust on top of the station.
	HEPA filter is blocked	If replacing prefilter does not help, replace the HEPA filter.

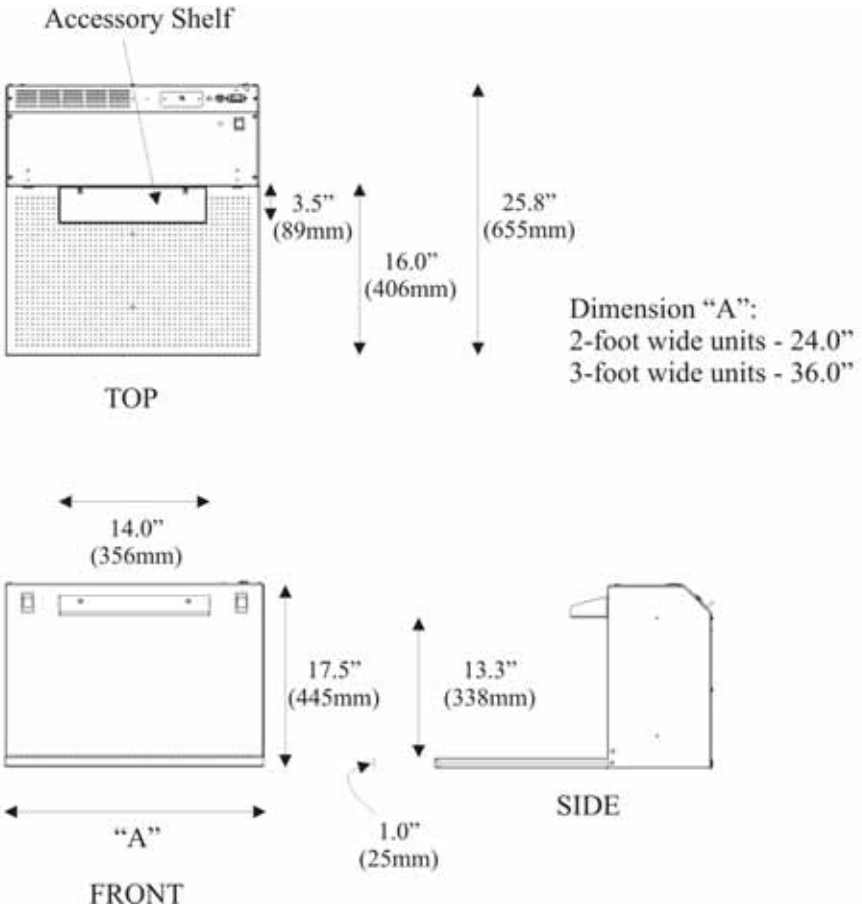
Appendix A: Components

Downdraft Powder Station Replacement Parts

Item	Quantity	Part No.	Description
1	1	3768903	Prefilter
2	1	6938100	HEPA Filter

Appendix B: Dimensions

B-1



Appendix C: Specifications

Electrical Data

Model #	Requirements	Energy Use
3410000, -01	115 VAC, 60 Hz, 1 Amp	100W
3410020 through -27	230 VAC, 50/60 Hz, 0.5 Amp	100W

Environmental Conditions

- Indoor use only.
- Maximum altitude: 6562 feet (2000 meters).
- Ambient temperature range: 41° to 104°F (5° to 40°C).
- Maximum relative humidity: 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).
- Main supply voltage fluctuations not to exceed ±10% of the nominal voltage.
- Transient overvoltages according to Installation Categories II (Overvoltage Categories per IEC 1010). Temporary voltage spikes on the AC input line that may be as high as 1500V for 115V models and 2500V for 230V models are allowed.
- Used in an environment of Pollution degrees 2 (i.e., where normally only non-conductive atmospheres are present). Occasionally, however, a temporary conductivity caused by condensation must be expected, in accordance with IEC 664.

Appendix D: Accessories

Prefilter (# 3768903)

Single disposable, pleated paper filter. The filter has a Minimum Efficiency Reporting Value (MERV) of 8, meaning it removes 70-85% of particles 3.0-10 microns in size. 1 lb. (0.5kg).

Transition (# 3xxxxxx)

Allows two separate stations to be tied together. 1 lb. (0.5kg).

DECLARATION OF CONFORMITY

Application Council Directive(s): 73/23/EEC, 89/336/EEC, 2002/95/EC (RoHS), 2004/108/EC

Standard(s) to which conformity is declared: EN61010-1, EN55022, EN61000-3-2/3, EN61326-1

Manufacturer's Name: Labconco Corporation

Manufacturer's Address: 8811 Prospect Avenue
Kansas City, MO 64132 USA

E-mail: labconco@labconco.com

Importer's Name: See Shipping/Customs Documents

Importer's Address: See Shipping/Customs Documents for your equipment

Type of Equipment: Laboratory Equipment

Model No.: 3400001, -02, -03, -04 Evidence Drying Cabinet 230V
3410020, -21, -22, -23, -24, -25, -26, -27 Downflow Powder Station 230V
3420020, -22, -24, -26 Capture Portable Fume Chamber 230V

Serial No.: Various – See Individual Declaration

Year of Manufacture: 2010 and Subsequent

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place:

Date:

(Signature)

MARK SEHNITZ
(Full Name)

V.P. of Research & Engineering
(Position)

Labconco P/N 3696073, Rev. B, ECO F907